Coronavirus Disease 2019 in Geriatrics and Long-term Care: The ABCDs of COVID-19

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ABSTRACT

The pandemic of coronavirus disease of 2019 (COVID-19) has global impact unseen since the 1918 worldwide influenza epidemic. All aspects of life have changed dramatically for now. The group most susceptible to COVID-19 are older adults and those with chronic underlying chronic medical disorders. The population residing in long-term care facilities generally are those who are both old and suffering from multiple comorbidities. In this article we provide information, insights, and recommended approaches to COVID-19 in the long-term facility setting. Since the situation is fluid and changing rapidly, readers are encouraged to access the resources cited in this article frequently.

Background

Since the first cases of coronavirus disease appeared in 2019 (COVID-19) in Wuhan, the capital city of Hubei Province, China, there have been 334,9981 confirmed cases globally in 190 countries, areas and territories according to the World Health Organization associated with 14,652 deaths; 31,573 of these cases are and 402 of the deaths are in the United States (as of March 24, 2020) (1). The numbers worldwide continue to increase, and the number of infections in the U.S. are expected to grow rapidly as testing becomes more available. The psychological and socioeconomic impacts of this illness are unprecedented in our lifetimes, with social distancing and resultant travel restrictions, closures of schools and many businesses, cancellation of recreational activities, and fear of shortages of basic living needs such as food, medications, cleaning and hygiene supplies. There is also the potential to overwhelm medical

and nursing services in emergency rooms, clinics, hospitals and other health care facilities due to a lack of access to testing, protective equipment, respirators, and medical and nursing direct care providers (who are at especially high risk for becoming infected and missing work as a result).

One of the defining features of COVID-19 is the predilection for infection of older adults and individuals with chronic underlying health conditions, resulting in higher attack rates and mortality (2). Given that older adults experience greater number and severity of chronic diseases and disabilities as well as immune dysfunction (3), it is intuitive that COVID-19 will disproportionately affect this population. Thus, it is not surprising that older adults residing in long-term care facilities (LTCFs) have the greatest susceptibility to COVID-19, as well as the poorest outcomes from this infection. “LTCFs” is a broad term that includes a wide range of facility types; this article focuses on the skilled nursing facility or nursing home setting, though much of the information may be relevant to other types of LTCFs. We refer to “patients/residents” to encompass the heterogeneity of the typical LTCF population – i.e. short-stay “patients” and long-stay “residents”.

An outbreak of COVID-19 in a LTCF in Seattle, Washington area was associated with several deaths, and more recent reports highlight infection in many other LTCFs (4), underscoring the enormous risk of COVID-19 in the older LTCF population. Although COVID-19 is a novel disease, other types of coronavirus (types 229E and OC43) have been previously described as causing respiratory disease in older adults. In one study, coronavirus infections in community-dwelling older adults accounted for 9.5% of respiratory illnesses (5).

In this article, we focus on critical aspects of this pandemic for health professionals who work in geriatrics and long-term care. The situation is very fluid, and changes hour to hour and day to day. No one knows how long this pandemic will last, and what its ultimate toll on the health of the world's population and economy will be. In the U.S. numerous agencies and organizations have issued guidance related to COVID-19 that are relevant to geriatrics and long-term care. These include federal agencies such as the Centers for Disease Control and Prevention (CDC), the Centers for Medicare and Medicaid Services (CMS), the Veterans Health Administration, as well as state and county governments. Federal agencies are making changes on a daily basis that will affect LTCFs such as waiving the 3-day requirement for Medicare coverage of a skilled stay, providing reimbursement for telehealth visits on a broader scale, and approving a rapid test for the virus that could save tens of thousands of transfers to the hospital for testing.

Many health professional organizations, including the American Geriatrics Society and the Society for Post-Acute and Long-Term Care have posted information, educational resources, and links on their websites. As would be expected at this early stage in the pandemic, not all of the information, even from these reliable sources is consistent. We have tried to summarize the current information to be as consistent with evidence and federal guidance as possible. The most detailed federal guidance can be found on the Centers for Medicare and Medicaid Services (CMS) (6) and Centers for Disease Control and Prevention (CDC) websites (7, 8). Several other resources and links to the CMS and CDC websites as well as other resources can be found on the websites of the American Geriatrics Society (9) and the Society for Post-Acute and Long-Term Care (10). The California Department of Health issued an executive order on March 20,

2020 that strongly recommends that LTCFs prepare to care for patients with COVID-19. This document contains a succinct but comprehensive list of recommendations that should be useful to all LTCFs (11).

With this background information, it is imperative that geriatrics healthcare providers understand the **"ABCD's"** of this pandemic: the **awareness** of potential key clinical differences of COVID-19 in this population; how to quickly initiate appropriate **behaviors** to clinically manage the infection in LTCFs; and concurrently, begin **containment** of the COVID-19 to disrupt further spread of the virus, as well as preventive interventions in the LTCF setting. In addition, healthcare leaders, policymakers and government agencies must make **decisions** that address more rapid access and results of testing and treatment for COVID-19, as well as the costs, and societal impacts of COVID-19.

Awareness

Clinicians who care for older adults are generally aware of the atypical presentations of common clinical diseases and disorders in this population. Certainly, infectious diseases are no different (12). The typical findings in patients with COVID-19 are fever, cough and dyspnea. In an initial report of 138 patients in Wuhan China with mean age 56 (range 22-92), most without multiple comorbidities, fever was present in 99%, fatigue in 70%, cough in 59%, anorexia in 40%, myalgia in 35%, and dyspnea in 31% (13). However, older adults, especially frail older adults with multiple chronic conditions, may be afebrile and may not have a cough, chest discomfort or sputum production. Tachypnea, altered mental status or delirium, and

unexplained tachycardia or decrease in blood pressure may be the presenting clinical manifestations. Informal reports from U.S. physicians who have cared for older patients with COVID-19 indicate that the most common presentation of infection began with malaise, muscle pains, low-grade fever, and cough, which progressed to respiratory difficulty in the second week of illness; fever was not prominent in several cases (14). Many LTCF residents have dementia, history of strokes, or other health issues that may mask manifestations of COVID-19 infection. Thus any significant change in clinical status from baseline in older adults that has no immediate explanation may be caused by infection or sepsis and must be evaluated for COVID-19 infection during the current epidemic (15). Some reports from China indicate that co-infection with another respiratory virus such as influenza is uncommon (less than 0.5%), suggesting that if a patient tests positive for influenza, it is unlikely that they are harboring COVID-19. Whether this finding also occurs in countries outside of China remains to be confirmed.

Behavior

Our behavior as individuals and as health professionals must change in order to mitigate the rapid spread of this virus. Many people in general, and staff who work in LTCFs in particular, may be infected with the virus and be contagious, but have no or mild symptoms. Thus, we all must behave as if we can contract the virus without contact with a symptomatic person, and as if we can transmit the virus ourselves. Based on CMS guidance, LTCFs must not allow any visitors except for very narrowly defined circumstances (6), and have therefore instituted screening procedures for all staff, contractors, and visitors. In addition, CMS recommends not using a common dining room and cancelling all group activities. Traditional infrequent

monitoring of vital signs and clinical status must be enhanced during this period of COVID-19, especially for LTC residents. All residents should be evaluated for a change of condition at least three times per 24 hour period, and have daily temperature measurements. Rapid temperature measuring devices should be used to expedite identification of fever. However, the absence of fever does not necessarily exclude an infection in older LTCF patients/residents, and thus assessment of clinical status for any change from baseline (e.g., new onset of cough, dyspnea, altered mental status, changes in vital signs other than temperature) is essential.

LTCF clinicians and staff must be prepared to quickly take action when a patient/resident is identified as high risk for COVID-19 and/or has clinical findings consistent with COVID-19. **Figure 1** illustrates examples of criteria for testing for COVID-19. **Figure 2** illustrates different approaches to management based on whether the facility is prepared to test and manage patients/residents in the facility vs. transferring them to an acute care facility. This decision will vary depending on how local circumstance evolve, and may change rapidly over time. For example, rapid testing that gives results in hours rather than days will be available in the near future; many emergency departments and hospitals are becoming overwhelmed by symptomatic patients, and may not allow transfer of patients with mild symptoms that can be managed at a lower level of care; and alternative isolation and quarantine centers may be developed that would provide relief for both LTCFs and acute hospitals. A helpful review of the key points on COVID-19 for Emergency Department providers was just published and includes information about older patients and interactions with LTCFs (16).

Any LTCF patient/resident who meets the criteria in **Figure 1**, and/or develops symptoms consistent with COVID-19 should immediately be isolated in a separate room or a quarantine area in situations when multiple patients/residents meet the criteria, and strict infection prevention and control practices implemented. The screening criteria in **Figure 1** are those outlined by the CDC and the Los Angeles County Department of Public Health (17) for testing for COVID-19. This individual is now classified as a "**Person Under Investigation (PUI**)" and a decision must be made about management in the LTCF vs. transfer to an acute care facility for evaluation and management (**Figure 2)**. Until COVID-19 testing is more widely available in the LTCF setting, it may be useful to perform viral testing that is available to most LTCFs for influenza and other respiratory viruses, as positive tests for these viruses may explain the symptoms rather than COVID-19.

All staff who will have immediate contact with a patient/resident suspected or confirmed to have the virus must use airborne precautions and wear personal protective equipment (PPE) that includes N-95 mask, goggles, gown and gloves. In these times of shortages of PPE, the CDC recommends alternatives to N-95 including other filtering facepiece respirators, elastomeric half-mask and full facepiece air purifying respirators, and powered air purifying respirators where feasible. Staff and other LTCF residents who have had contact with an infected patient/resident should also be tested and placed in quarantine for at least 14 days if they test positive.

Containment

Preparation

To effectively implement measures to not only identify new infections but also prevent further spreading of the COVID-19, LTCFs should have clear knowledge of stakeholders and their roles in this situation. **Table 1** provides examples of key stakeholders who will be essential in managing a COVID-19 outbreak in the LTCF and their roles. Updated contact information is vital for communication with all key stakeholders so that policies and guidelines released by national, regional and local health organizations, which may change quickly depending on the status of the COVID-19, can be efficiently disseminated to all stakeholders. Communication modalities may include signage, conference calling and webinars, hotlines, recorded messages, and if available, telehealth.

Adequate supplies for temporary management of sick COVID-19 patients, as well as for preventive interventions are critical. To the extent possible, given national shortages, there should be assurance of adequate standard care supplies as well as face masks including N-95 respiratory, gowns, gloves, hand soaps, and alcohol sanitizing solutions.

Preventive Interventions

The coronavirus mechanism of spread appears to be similar to that of influenza, i.e., droplet transmission. Coughing or sneezing from an infected patient can have droplet nuclei (containing virus) travel airborne at least 3 feet. Similar to influenza virus, it is felt that this coronavirus can remain viable on skin surfaces and inanimate objects for several hours, and on some surfaces for several days. The primary portal of entry for the virus is through the upper respiratory tract and then it settles in the lower respiratory tract (18). Thus, personal protection

and prevention includes a variety of strategies. The CDC offers comprehensive guidance on these strategies (7). Regular careful washing of hands for 20 seconds with soaps and/or cleansing hands with alcohol-based antiseptic, after contact with any resident/patient or surface that potentially could harbor the virus (e.g., door knobs, stairway hand rails, restaurant menus, elevator buttons, common-use computers, etc.). Avoiding touching one's face area including mouth, nose and eyes is critical because of the portal of entry. A fecal-oral route of transmission may be possible since viral RNA has been isolated in stool samples from infected patients, but this remains to be proven. Frequent cleansing and disinfecting of bathrooms, showers, bedrails, hallway hand rails, door knobs, elevators, stairwell hand rails, and all equipment that would be used by patients/residents and/or staff should be implemented.

To limit any potential spread of the infections between individuals, "social distancing" is highly recommended, as it is outside the LTCF. Individuals should maintain a distance of 3 to 6 feet from another person. Meetings or conferences should be reduced in number to only very essential information exchanges, and should be limited to as small a number of people as necessary. For LTCFs involved with teaching institutions and their trainees or students, these activities should be postponed until further guidance is provided by the school, college or university.

Staff, residents and visitors of LTCFs should be educated and informed of the clinical manifestations of COVID-19 infection and should be screened daily before entering the facility. Any positive should prompt staff to contact their healthcare provider for further evaluation. Reminders of the clinical manifestations of COVID-19 and the preventive interventions should

include signs and posters placed throughout the entire facility, and especially in the resident rooms, employee restroom and break room, as well as at the entrance of the building.

New admissions to the LTCF should only be allowed if the potential resident has been screened negative for COVID-19. If screening has not been performed, then admission should be avoided or delayed until screening has been completed. This situation may change as LTCFs may be called upon to care for patients who test positive for COVID-19 (11).

Decisions

At a time of unprecedented crisis, local, county, state, and federal leadership must make difficult decisions. They must communicate regularly in a clear and honest way, balancing the seriousness of the situation with a sense of community purpose and cooperation to resolve the crisis as soon as possible.

At a local level, LTCF administration and medical leadership should remain informed by regularly checking the resources cited in this article as well as others, and communicating updated key information to staff, patients/residents, and families. Administrators should also be prepared to address employee absenteeism and strongly recommend employees to remain at home if they have symptoms compatible with COVID-19, and create back-up plans to cover potential staff shortages to the extent possible. Medical directors should collaborate with nursing and social work staff to help ensure that advance care planning and advance directives are updated as appropriate to the patient/resident condition and documented. This is especially important in areas where the number of intensive care unit beds and respirators may

be limited and potentially unavailable to those at the end-of-life. A wide variety of tools to assist with advance care planning are available with links to other resources on the INTERACT (Interventions to Reduce Acute Care Transfers) website (19). Because the situation is changing so rapidly, the formation of local groups of key health professionals to communicate what they are encountering and brainstorm on local solutions in real time should be encouraged.

County and state health departments are stepping up as illustrated by the leadership of the California Department of Public Health as just one of many examples (11, 17). Many state governors are implementing a wide variety of public health measures, taking dramatic steps to meet the needs of hospitals, LTCFs, health care providers and to protect their population, giving daily briefings to communicate these decisions.

Numerous federal agencies are playing a leadership role under the auspices of the White House Coronavirus Task Force in dealing with both the health and economic consequences of this pandemic. The leaders of these agencies are communicating their decisions and activities on televised briefings daily. Examples of decision-making at the federal level that affect LTCFs include all of the information and recommendations posted on the cited websites, waiving the 3-day hospitalization rule for Medicare coverage of a skilled LTCF stay, relaxing restrictions on reimbursement for telehealth, delaying implementation of the updated Minimum Data Set, and the approval of a rapid diagnostic test for COVID-19 that may be available soon. All of these measures are intended to better prepare LTCF leadership, staff, and medical providers to play a critical role in mitigating the potential devastating health and economic consequences of this pandemic.

Summary

This article is intended to help geriatrics healthcare providers understand the **"ABCD's"** of the COVID-19 pandemic. We recognize that the situation is fluid as new information and recommendations are released on an almost hourly basis. We have done the best we can to provide a succinct guide to the most current information, and will continue to monitor the situation and update as quickly as we can.

This is an opportunity for the field of Geriatrics to shine and play a critical role in the vast team of people and organizations involved in managing this crisis. **Awareness** of potential key clinical differences of COVID-19 in this population; quickly initiating appropriate **behaviors** to clinically manage the infection in LTCFs; implementing **containment** strategies to disrupt further spread of the virus, as well as preventive interventions in an LTCF; and being knowledgeable about the **decisions** being made at the local, state, and federal level will help achieve this goal.

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Figure Legends

Figure 1: Screening to test for COVID-19 in the LTCF

Until COVID-19 testing is more widely available in the LTCF setting, it may be useful to perform viral testing that is available to most LTCFs for influenza and other respiratory viruses, as positive tests for these viruses may explain the symptoms rather than COVID-19.

Figure 2: COVID-19 - Decision Management in the LTCF

Viral testing in this Figure refers to testing for COVID-19. Until COVID-19 testing is more widely available in the LTCF setting, it may be useful to perform viral testing that is available to most LTCFs for influenza and other respiratory viruses, as positive tests for these viruses may explain the symptoms rather than COVID-19.

* See **Figure 1** for examples of screening criteria for testing
** CMS requires the LTCF to have the ability to follow CDC COVID-19 Infection Control and Prevention Practices (see References 7, 8 and 11)

COVID-19 = Coronavirus Disease, 2019: LTCF = Long-Term Care Facility;
PPE = personal protective equipment

Table 1 – LTCF Stakeholders and Functions during the COVID-19 Outbreak

Key Stakeholders	Functions During the COVID-19 Outbreak
Corporate Leadership	Provide consistent messaging, education, and updating on the most current regulations and relevant policies and procedures
Administrator	Coordinate the facility team; ensure adherence to all federal, state and county recommendations, regulations, and policies Ensure the facility has adequate supplies and equipment Coordinate quality improvement activities
Director of Nursing	Ensure adequate and appropriate nurse staff; implement and ensure that policies and procedures are adhered to; education of nursing staff; oversee infection control practitioner Assist administrator in coordination of quality improvement activities
Medical Director	Educate clinicians and ensure adherence to all facility, federal and state policies and procedures, including identification of those needing COVID-19 testing and transfer to acute care Ensure adequate medical coverage both onsite and via telemedicine, and encourage primary care clinicians to update as appropriate to the patient/resident condition and document advance directives Participate in infection control and other quality improvement activities
Infection Control Practitioner	Assure implementation of infection control measures; identify possible infected staff and residents; assist with COVID-19 policies and procedures
Social Worker	Assist primary care clinicians in updating as appropriate to the patient/resident condition and document advance directives Ensure appropriate discharge to a safe setting of care
Pharmacy	Assist with antimicrobial stewardship related to the outbreak Ensure adequate supply of medications and supplies to manage symptoms of the illness
Maintenance	Frequent cleansing and disinfecting all areas of facility, equipment, dining tables, etc.
Facilities Management	Ensure adequate supplies, including and equipment (including protective equipment as available), and transportation

Screening to test for COVID-19 in the LTCF

CDC Recommendations on Who to Test for COVID-19

1. Hospitalized patients who have signs and symptoms compatible with COVID-19 in order to inform decisions related to infection control.

2. Other symptomatic individuals such as, older adults and individuals with chronic medical conditions and/or an immunocompromised state that may put them at higher risk for poor outcomes (e.g., diabetes, heart disease, receiving immunosuppressive medications, chronic lung disease, chronic kidney disease).

3. Any persons including healthcare personnel, who within 14 days of symptom onset had close contact with a suspect or laboratory-confirmed[4] COVID-19 patient, or who have a history of travel from restricted areas within 14 days of their symptom onset.

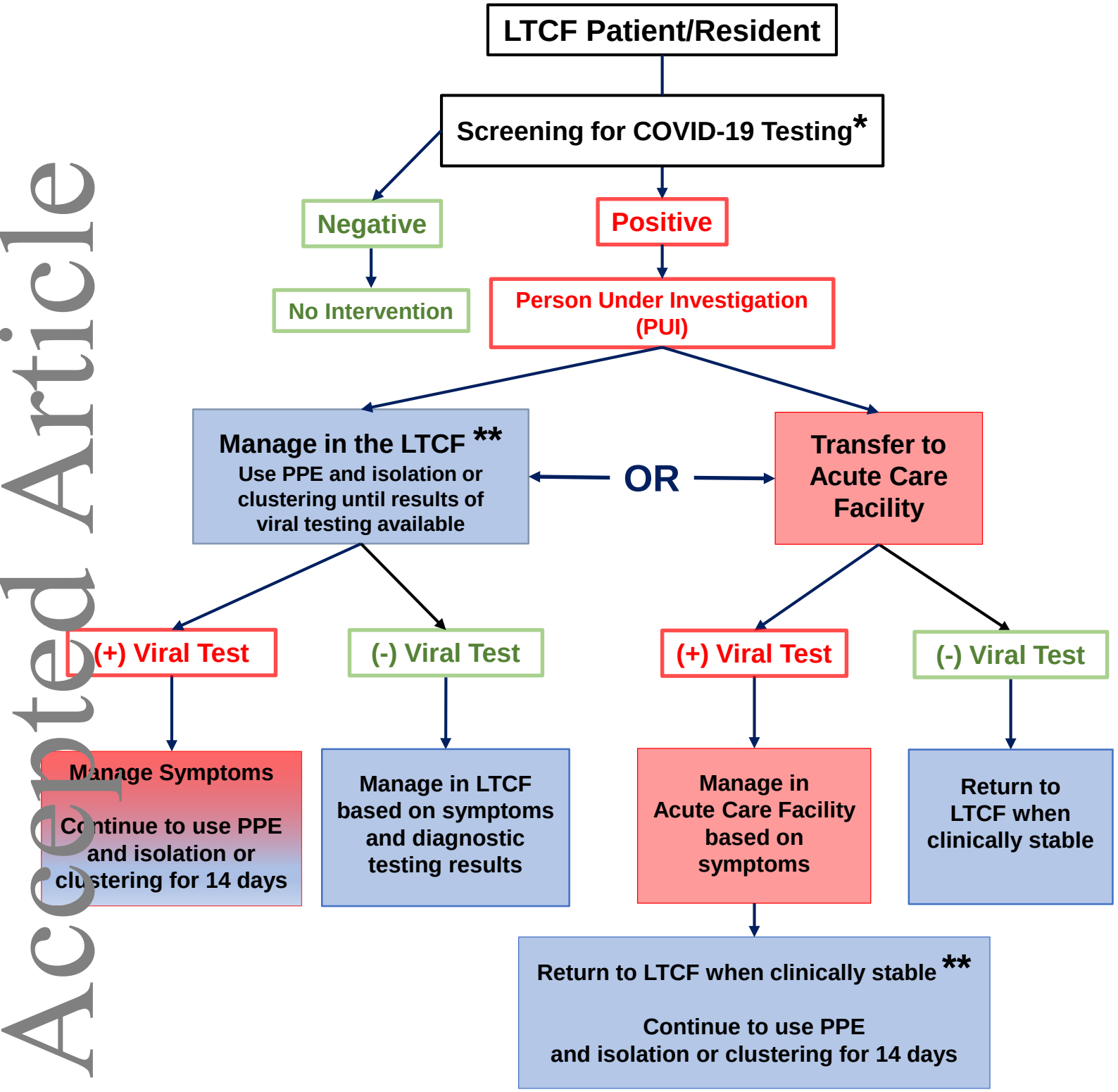
For details see: https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-criteria.html

Los Angeles Department of Public Health Testing Criteria

LAC DPH Public Health Lab (PHL) COVID-19 Testing Criteria		
Clinical Features	**and**	**Epidemiologic Risk**
Fever **or** signs/symptoms of lower respiratory illness (e.g. cough or shortness of breath)	AND	Any healthcare worker (defined as a person providing direct clinical care to patients) who worked while symptomatic in an acute or long-term care facility[1] **-or-** A resident of a long-term care facility **-or-** Paramedic personnel and Emergency Medicine Technicians (EMTs)
Part of a cluster of 2 or more cases of a presumed infectious acute respiratory illness within a 72-hour period	AND	Any congregate living setting (e.g. senior assisted-living facility, homeless shelters)

For details see: http://publichealth.lacounty.gov/acd/ncorona2019/checklist.htm

COVID-19 - Decision Management in the LTCF



* See Figure 1 for examples of screening criteria for testing

** CMS requires the LTCF to have the ability to follow CDC COVID-19 Infection Control and Prevention Practices (see References 7,8 and 11)

COVID-19 = Coronavirus Disease, 2019; LTCF = Long-Term Care Facility; PPE = personal protective equipment